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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,055	07/11/2003	Robert J. Weber	502224	4319

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EXAMINER

ROJAS, BERNARD

ART UNIT PAPER NUMBER

2832

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/618,055

Applicant(s)

WEBBER ET AL.

Examiner

Bernard Rojas

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/11/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

The drawings are objected to because the details in figures 2-4, 9A and 9b cannot be clearly seen due to the quality of the drawings. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the stress relief at a base [claim 21] and the lateral stress relief [claim 22] must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-7, 9-11, 14, 15, 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 2-7, 9-11, 14, 15, 27 and 28 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: that the variables used in the claims are not defined in the claims.

Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant should clarify what is meant by a "Multi-User Micro-Electro-Mechanical Systems Process".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7, 8, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ma [US 6,531,668].

Claim 1, Ma teaches a micro-cantilever device [figure 3A, 3B] with a base section [22], a cantilever section [220] having a length and a tapered width along the length, the cantilever section connected to the base section [at 90], the tapered width a function of position along the length.

Claim 2, Ma shows the function is defined by tapered width = $w_0 + ax$ [figure 3A].

Claim 7, Ma shows a ground plane [46] is below a portion of the cantilever section.

Claim 8, Ma shows the micro-cantilever has a pull-in voltage that is calculated as a function of the dimensions of the cantilever section and material properties of the cantilever section [col. 5 lines 15-21].

Claim 18, Ma teaches a micro-cantilever device [figure 4A-4C] with a base section [90], a cantilever section [420] having a length and a tapered width along the length, the cantilever section connected to the base section, the tapered width a function of position along the length and a second base section [90] wherein the cantilever is attached to the second base section.

Claim 19, Ma shows a ground plane [46] is below a portion of the cantilever section.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-6, 9-15 and 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma [US 6,531,668].

Claims 3-6 and 24, it would have been obvious to one of ordinary skill in the art at the time the invention was made to custom tailor the taper function in order to adjust the resonant frequency of the beam.

Claims 9-15 and 27-28, it would have been obvious to one having ordinary skill in the art at the time the invention was made to calculate the pull-in voltage since it was known in the art that the function controlling the cantilever pull-in voltage depends on the cantilever length, taper and material from which it is constructed.

Claims 25, 26, 29 and 30, It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the pull-in voltage formula of the cantilever depending on its geometry [col. 5 lines 15-21].

Claims 16, 17 and 20-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Ma [US 6,531,668] in view of Sun [US 6,307,452]

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Claims 16 and 20, Ma discloses the claimed invention with the exception of using windows on the cantilever.

Sun teaches using windows [28] on the cantilever [20] in order to reduced the weight of the cantilever.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide holes on the cantilever of Ma in order to reduce its weight thereby reducing the electrostatic force required for actuation.

Claim 17, Ma teaches a micro-cantilever device which has an axis about which the micro-cantilever is symmetric. It would have been an obvious matter of design choice to place a window on the axis of symmetry, since applicant has not disclosed that the placement of the window on the axis of symmetry solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the window located in another area.

Claim 21, a strain refile at at least one of the base section and second base section [figure 5C].

Claim 22, the window of Sun acts as a lateral stress relief for a cantilever section.

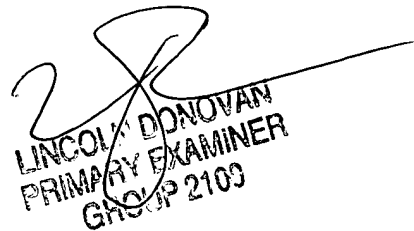
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M-F 8-4:00), every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Br


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